

ATTACHMENT A Amendments to the Claims

Following herewith is a complete listing of the claims, including a marked copy of the currently amended claims, and any claims indicated as canceled are canceled without prejudice or disclaimer:

1. (Currently amended) A method of treating a pipe ~~(1,3)~~ having at least one gap or discontinuity ~~(13,15)~~ on ~~an~~the interior surface thereof, the method including the step of applying filling material ~~(21)~~ to the gap or discontinuity ~~(13,15)~~ so as to provide a generally smooth interior surface ~~(22)~~ of filling material that is substantially flush with the interior surface of the pipe at ~~a~~the region of the gap, or discontinuity ~~(13,15)~~ and ~~characterised by~~ the subsequent step of applying a lining material ~~(19,34)~~ over the interior surface of the pipe and the filling material ~~(21)~~ to form a continuous fluid-tight coating of the pipe.
2. (Canceled).
3. (Currently amended) A method according to claim 1, wherein the gap or discontinuity ~~(13,15)~~ is created by deterioration of the pipe over time, ~~such as by cracking or corrosion.~~
4. (Currently amended) A method according to claim 1, wherein the gap or discontinuity ~~(15)~~ is a redundant fluid passage.
5. (Currently amended) A method according to claim 1 ~~or 4~~, wherein the gap or discontinuity ~~(15)~~ is a protrusion from the interior surface of the pipe.
6. (Currently amended) A method according to ~~any one of the preceding claims~~ 1, wherein the filling material ~~(21)~~ is applied such that it bridges across the gap or discontinuity ~~(13,15)~~ but does not completely fill the gap or discontinuity ~~(13,15)~~.

7. (Currently amended) A method of forming a pipe ~~(1,3)~~, including coupling a plurality of pipe sections, ~~and treating the pipe according to the method of any one of the preceding claims.~~ such that there is at least one gap or discontinuity on the interior surface thereof applying filling material to the gap so as to provide a generally smooth interior surface of filling material that is substantially flush with the interior surface of the pipe at a region of the gap, and the subsequent step of applying a lining material over the interior surface of the pipe and the filling material to form a continuous fluid-tight coating of the pipe.

8. (Original) A method according to claim 7, wherein the pipe sections are coupled by a spigot and socket joint.

9. (Original) A method according to claim 7, wherein the pipe sections are coupled by a welded joint.

10. (Original) A method according to claim 7, wherein the pipe sections are coupled a bolted gland joint.

11. (Canceled)

12. (Currently amended) A method according to claim 7 ~~or 8~~, wherein a fluid seal ~~(7)~~ is applied between the pipe sections.

13. (Currently amended) A method according to claim 12, wherein the fluid seal ~~(7)~~ is applied prior to applying the filling material ~~(21)~~.

14. (Currently amended) A method according to claim 12 ~~or 13~~, wherein the fluid seal ~~(7)~~ is located further from the centre of the pipe than the filling material ~~(21)~~.

15. (Currently amended) A method according to ~~any one of the preceding claims 1~~, wherein the filling material (21) is applied by spraying the filling material (21) onto the interior surface of the pipe.

16-17. (Canceled)

18. (Currently amended) A method according to ~~any one of claims 1 to 14~~, wherein the filling material (21) is applied by forming a cavity (75) at the gap ~~or discontinuity (13,17)~~ and supplying filling material (21) to the cavity (75).

19. (Currently amended) A method according to claim 18, wherein the cavity (75) is formed by an inflatable bladder (69) inflated within the pipe.

20. (Currently amended) A method according to ~~any one of claims 1 to 19~~, wherein the lining material (21) is applied by spraying.

21. (Currently amended) A method according to ~~any one of claims 1 to 20~~, wherein the lining material (21) forms a cross-linked molecular structure.

22. (Currently amended) A method according to ~~any one of claims 1 to 21~~, wherein the lining material (21) is a flexible polyurea.

23. (Currently amended) A method according to claim 12, wherein the fluid seal (7) is applied prior to lining the pipeline.

24. (Currently amended) A method according to claim 12, wherein the fluid seal (7) is applied after lining the pipeline.

25. (Currently amended) A method according to ~~any one of the preceding claims~~ 1, wherein the filling material ~~(24)~~ is a liquid, two-part resin system which sets substantially within one minute of the two parts mixing.

26. (Currently amended) A method according to claim 25, wherein ~~at~~ the first part of the resin system comprises material selected from the group consisting of polyisocyanate and polyisocyanate, ~~optionally~~ blended with a non-reactive plasticiser.

27. (Currently amended) A method according to claim 25 ~~or 26~~, wherein ~~at~~ the second part of the resin system comprises a material selected from the group consisting of a polyamine, a plurality of polyamines, a polyamine blended with a polyhydric alcohol, a polyamine blended with a non-reactive plasticiser, a polyamine blended with a polyhydric alcohol and a non-reactive plasticiser, ~~one or more polyamines, optionally blended with one or more polyhydric alcohols (polyols) and/or a non-reactive plasticiser.~~

28. (Currently amended) A method according to ~~any one of the preceding claims~~ 1, wherein the filling material ~~(24)~~ comprises two components which set when combined, the method including combining the two components in a channel ~~(38)~~ from which the combined components pass to the gap ~~or discontinuity (13,15)~~, and further including removing residue of said components from said channel ~~(38)~~ after treating the gap ~~or discontinuity~~ with the filling material.

29. (Currently amended) A method according to claim 28, wherein the residue is removed by a piston ~~(43)~~ moving in said channel ~~(38)~~.

30. (Currently amended) A method according to claim 29, wherein the residue removed by the piston ~~(43)~~ completes the application of the filling material to the gap or discontinuity.

31. (Currently amended) A method according to ~~any one of the preceding claims~~ 1, wherein the filling material ~~(21)~~ comprises a plurality of components, each stored in respective reservoirs ~~(36,37,49,51)~~, and wherein the components are ejected from said reservoirs simultaneously.

32. (Currently amended) A method according to claim 31, wherein the components are ejected from said reservoirs by movement of a piston ~~(57,59)~~ in each of said reservoirs.

33. (Currently amended) A method according to claim 32, wherein the respective pistons ~~(57,59)~~ in each reservoir ~~(49,51)~~ are coupled to one another and are moved by a common power source ~~(53,55)~~.

34. (Canceled)

35. (Currently amended) A method according to claim 18 ~~or 19~~, wherein gas trapped in said cavity ~~(75)~~ is released or compressed as said filler material ~~(21)~~ is applied to the gap or discontinuity.

36. (Currently amended) A method according to claim 35, wherein the gas is released through port means ~~(63)~~ in said cavity ~~(75)~~.

37. (Currently amended) A method according to claim 36, wherein the port means ~~(63)~~ allows the passage therethrough of gas but not liquid.

38. (Currently amended) A method according to claim 37, wherein the port means ~~(63)~~ comprises a PTFE fabric membrane which allows air particles therethrough but not liquid particles.

39. (Currently amended) A method according to claim 18, ~~19, 35, 36, 37 or 38,~~ including using information obtained from a camera ~~(67)~~ in said cavity to locate the cavity with respect to the gap or discontinuity.

40. (Canceled)

41. (Currently amended) Apparatus for lining a pipe ~~(1,3)~~ having at least one gap or discontinuity ~~(13,15)~~ in ~~an~~the interior surface thereof, the apparatus including means for applying filling material to the gap or discontinuity such that a generally smooth interior surface of filling material that is substantially flush with the interior surface of the pipe is formed at ~~at~~the region of the gap or discontinuity, and ~~characterised by~~ means for subsequently spraying a liner material ~~(29,34)~~ over a region ~~(21)~~ of the interior surface including the filling material to form a continuous fluid-tight coating of the pipe.

42. (Original) The apparatus according to claim 41, wherein the said applying means is operable to apply a low viscosity polymer.

43. (Currently amended) Apparatus for lining a pipe ~~(1,3)~~ having at least one gap or discontinuity ~~(13,15)~~ therein, the apparatus including means for applying filling material ~~(21)~~ to the gap or discontinuity ~~(13,15)~~ so as to form a generally smooth interior surface of the pipe at the region of the gap or discontinuity ~~(13,15)~~, the applying means comprising a source of a first component of the filling material ~~(36,49)~~ and a source of a second component of the filling material ~~(37,51)~~, a channel ~~(38)~~ coupled to the respective sources for receiving the first and second components therefrom and in which the first and second components to cause the components to set, and a means ~~(43)~~ for removing residue of said components from the said channel after application of the filling material to the gap or discontinuity.

44. (Currently amended) The apparatus of claim 45, wherein the removing means ~~(43)~~ comprises a piston reciprocable within the channel.

45. (Currently amended) Apparatus for lining a pipe ~~(1,3)~~ having at least one gap or discontinuity ~~(13,15)~~ in an interior surface thereof, the apparatus comprising means for applying filling material ~~(21)~~ to the gap or discontinuity so that a generally smooth interior surface of the pipe is formed at the region of the gap or discontinuity, a plurality of reservoirs ~~(36,37,49,51)~~ in which respective components of the filling material ~~(21)~~ are stored, and means ~~(53,55,57,59)~~ for ejecting the components from the respective reservoirs simultaneously in order to apply the filling material.

46. (Currently amended) The apparatus of claim 45, wherein the ejecting means comprises a reciprocable piston ~~(55)~~ of each of said reservoirs for urging the components stored therein to be ejected in metered quantities through an outlet of each of the reservoirs for application to the gap or discontinuity.

47. (Currently amended) The apparatus of claim 46, including means for coupling together the pistons in the respective reservoirs, a power source ~~(53)~~, and coupling means for applying power from the said power source to each of the pistons.

48. (Canceled)

49. (Currently amended) The apparatus of ~~any one of claims 45 to 48~~, wherein the filling material ~~(21)~~ is delivered at a pressure of substantially 2000 PSI or above.

50-51. (Canceled)